

ABSTRACT

An antenna apparatus (100-116) includes a minute loop antenna (A3) and at least one antenna element (A1, A2). The minute loop antenna (A3) is provided to be electromagnetically close to a dielectric substrate (10) including a grounding conductor (11), has a predetermined number N of turns and a predetermined minute length, operates as a magnetic ideal dipole when a predetermined metal plate (30) is located closely to the antenna apparatus (100-116), and operates as a current antenna when the metal plate (30) is located apart from the antenna apparatus (100-116). The antenna element (A1, A2) is connected to the minute loop antenna (A3), and operates as a current antenna. In the antenna apparatus (100-116), one end of the antenna apparatus (100-116) is connected to a feeding point (Q), and another end of the antenna apparatus (100-116) is connected to the grounding conductor (11) of the dielectric substrate (10).